

09/914487

518 Rec'd PCT/PTO 27 AUG 2001

174/02403 AO1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Shlomo SHKOLNIK
Serial Number: Not yet assigned
Filed: December 25, 2000 as PCT/IL00/00857
For: **MULTIDISCIPLINARY PROJECT INTEGRATION SYSTEM**
Art Unit: Not yet assigned

Honorable Commissioner of Patents and Trademarks
Washington DC 20231

PRELIMINARY AMENDMENT

Sir:

Further to the concurrent filing of a US national stage application of PCT application PCT/IL00/00857, kindly amend the application as follows:

IN THE SPECIFICATION

Kindly replace the "Related Applications" section on page 1, immediately after the title, with the following section:

-- RELATED APPLICATIONS

This application is a U.S. national filing of PCT Application No. PCT/IL00/00857, filed on December 25, 2000. The present application also claims the benefit under 35 USC 119(e) of US Provisional application 60/173,718 filed December 30, 1999, the disclosure of which is incorporated herein by reference in its entirety. --

Kindly replace the paragraph beginning on page 9, line 3 with the following paragraph:

--Database 20 optionally comprises records for substantially all of the major elements of the designed aircraft. Database 20 describes the relations between the various elements and includes references to documents and workers related to the elements. The relations between the elements optionally include one or more of the functionalities of the elements, cross connections between elements and/or the locations of the elements. The functionalities of an element optionally include the systems and/or sub-systems to which the element belongs. The cross connections optionally refer for each element to the elements to which the element is connected, the sub-elements included in the element and/or an element in which the element is included. Optionally, the relations

174/02403 AO1

between the elements in database 20 are according to a plurality of different categorizations. It is noted that a prior art PDM system generally does not include cross connections and the data on each element in the PDM system is found in a specific position of a product tree.--

Kindly replace the paragraph beginning on page 11, line 14 with the following paragraph:

--Thus, the use of database 20 begins at early design stages of the aircraft and continues until post production stages, optionally including maintenance at a client purchasing the aircraft. At early design stages, database 20 simplifies the communication between workers from different departments, allowing real time feedback on the integration of different systems being designed. Optionally, the design of each system (e.g. hydraulic, electric) is continuously entered to database 20 allowing workers designing other systems to relate to the design of the system before changes become expensive and problematic. --

Kindly replace the paragraph beginning on page 12, line 27 with the following paragraph:

--The location of each element is optionally stated in a three-dimensional coordinate system of the aircraft. Optionally, the coordinates of the element are the coordinates of the center of mass of the element. Alternatively or additionally, the coordinates are of an envelope encompassing the element. In some embodiments of the invention, the coordinates of each element are stated in more than one coordinate system of the aircraft. In some embodiments of the invention, the location information also states the compartment of the aircraft in which the element is located according to any predetermined compartment division, such as the ATA 100 regulation division. Optionally, assembly table 70 also states the access door for maintenance of each element, for example using the ATA 100 standard. Alternatively or additionally, the compartment and/or the access door of the elements are considered related to the functionality of the element and are stated in MRD table 74 described herein below or in one or more of its related tables 76. --

Kindly replace the paragraph beginning on page 16, line 9 with the following paragraph:

--Fig. 4 is a schematic illustration of a uniform MRD code structure 100, in accordance with an embodiment of the invention. Code structure 100 is optionally a global structure which covers all the major elements of an aircraft using a uniform set of rules. In some embodiments of the invention, code structure 100 is based on known coding schemes from the aircraft industry. For example, symbols used in part numbers and/or in wire labeling are optionally used in code structure 100. It is noted that workers 30 from different countries are used to different symbols. Therefore,

174/02403 AO1

different code structures are optionally used by different companies. For example, American and European companies use different methods to designate the various sections of an aircraft. Therefore, in an embodiment of the invention, the codes used by Americans may be different than codes use by Europeans. In some embodiments of the invention, database 20 includes one or more translation tables for translating codes from different code structures. In an embodiment of the present invention, a worker 30 connecting to database 20 selects a code structure with which he/she is familiar and database 20 automatically displays all codes in the selected code structure --

IN THE CLAIMS

Kindly replace the present claims 3-9, 11, 13-20, 22, 25-27, 29-31, 34, 36-39, 41, 43, 44, 47, 48 and 52 with the following claims in clean form:

3.(Amended) A system according to claim 1, wherein the at least one indication of the relative assembly comprises an indication in each record of the major elements which are functionally related to the element described by the record.

4. (Amended) A system according to claim 1, wherein the at least one indication of the relative assembly comprises an indication in each record of the coordinates in the vehicles framework of the element described by the record.

5. (Amended) A system according to claim 1, wherein the at least one indication of the relative assembly comprises an indication for at least one of the major elements of an access door of the element.

6. (Amended) A system according to claim 1, wherein the at least one indication of the relative assembly comprises an indication for at least one of the major elements of a compartment in which the element is located.

7 (Amended) A system according to claim 1, wherein the at least one indication of the relative assembly comprises an indication in each record of the major elements with which the element interacts

8. (Amended) A system according to claim 1, wherein the database substantially does not comprise drawings.

174/02403 AO1

9. (Amended) A system according to claim 1, wherein the database requires less than 1Gbytes of storage space.

11. (Amended) A system according to claim 1, wherein the database includes records for less than 10% of the elements of the vehicle.

13. (Amended) A system according to claim 1, wherein the references to the documents comprise hypertext links.

14. (Amended) A system according to claim 1, wherein the documents comprise diagrams including the elements.

15. (Amended) A system according to claim 1, wherein the documents comprise procurement invoices of the elements.

16. (Amended) A system according to claim 1, wherein each of the elements is identified by a unique code which is assigned according to a functionality of the element.

17. (Amended) A system according to claim 1, wherein the database is associated with at least one computerized tool such that an update of information in the at least one computerized tool automatically updates the database.

18. (Amended) A system according to claim 1, wherein the database is accessible over a network which connects a plurality of remote processors.

19. (Amended) A system according to claim 1, wherein the database is stored on a portable computer

20. (Amended) A system according to claim 1, comprising input and output information of at least one data evaluation program molded into a form of the database.

22. (Amended) A system according to claim 20, wherein the at least one data evaluation program comprises a design-for-manufacture-and-assembly program.

174/02403 AO1

25. (Amended) A method according to claim 23, wherein gathering the information comprises gathering interconnection information of the major elements.

26. (Amended) A method according to claim 23, wherein gathering the information comprises gathering references to documents describing the major elements.

27. (Amended) A method according to claim 23, wherein a company designing the vehicle comprises at least one group of workers that are restricted from viewing at least some information relating to the vehicle and wherein gathering the information comprises gathering information which is not restricted from viewing by substantially any of the workers of the company.

29. (Amended) A method according to claim 23, wherein storing the information comprises storing the information in a database.

30. (Amended) A method according to claim 23, wherein gathering the information comprises gathering information on elements of an aircraft.

31. (Amended) A method according to claim 23, wherein automatically gathering the information comprises automatically gathering the information periodically.

34. (Amended) A method according to claim 32, wherein the plurality of different indications of the relative assembly of the element comprise at least one indication of the location of the element.

36. (Amended) A method according to claim 34, wherein the at least one indication of the location of the element comprises an indication of an access door to the element within the vehicle.

37. (Amended) A method according to claim 34, wherein the at least one indication of the location of the element comprises an indication of a compartment in which the element is located.

38. (Amended) A method according to claim 32, wherein the plurality of different indications of the relative assembly of the element comprise a list of the major elements with which the element is connected.

174/02403 AOI

39. (Amended) A method according to claim 32, wherein the plurality of different indications of the relative assembly of the element comprise an indication of a system to which the element belongs.

41. (Amended) A method according to claim 32, comprising running a verification routine which finds design faults, on the database.

43. (Amended) A method according to claim 32, wherein the database does not include diagrams or drawings

44. (Amended) An aircraft designed using the method of providing information of claim 32.

47. (Amended) A method according to claim 45, wherein assigning the code comprises assigning a code having at least three digits in common with digits of a part number of the element, for substantially all the major elements of the aircraft.

48. (Amended) A method according to claim 45, wherein assigning the code comprises assigning a plurality of codes to at least one single element.

52. (Amended) A method according to claim 50, comprising preparing a responsibility matrix which references workers by the assigned worker codes.

174/02403 AO1

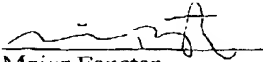
REMARKS

The present application is a US national application of PCT application PCT/IL00/00857 filed December 25, 2000. The present amendment, based on the specification and claims as originally filed, has been made in order to correct minor errors in the text and to remove multiple dependencies from the claims.

A marked-up version of the amendments is attached.

An examination on the merits is respectfully requested.

Respectfully submitted,
Shlomo SHKOLNIK


Maier Fenster
Reg. No. 41,016

August 27, 2001
William H. Dippert, Esq.
Cowan, Liebowitz and Latman, P.C.
1133 Avenue of the Americas
New York, NY 10036-6799
Tel (212) 790-9200

00014487 000704

Marked-up version of amendments:

IN THE SPECIFICATION

RELATED APPLICATIONS

This application is a U.S. national filing of PCT Application No. PCT/IL00/00857, filed on December 25, 2000. The present application also claims the benefit under 35 USC 119(e) of US Provisional application 60/173,718 filed December 30, 1999, the disclosure of which is incorporated herein by reference in its entirety.

Paragraph beginning on page 9, line 3:

Database 20 optionally comprises records for substantially all of the major elements of the designed aircraft. Database 20 describes the relations between the various elements and includes references to documents and workers related to the elements. The relations between the elements optionally include one or more of the functionalities of the elements, cross connections between elements and/or the locations of the elements. The functionalities of an element optionally include the systems and/or sub-systems to which the element belongs. The cross connections optionally refer for each element to the elements to which the element is connected, the sub-elements included in the element and/or an element in which the element is included. Optionally, the relations between the elements in database 20 are according to a plurality of different categorizations. It is noted that a prior art ~~DPM-PDM~~ system generally does not include cross connections and the data on each element in the ~~DPM-PDM~~ system is found in a specific position of a product tree.

Paragraph beginning on page 11, line 14:

Thus, the use of database 20 begins at early design stages of the aircraft and continues until post production stages, optionally including maintenance at a client purchasing the aircraft. At early design stages, database 20 simplifies the communication between workers from different departments, allowing real time feedback on the integration of different systems being ~~designed~~ designed. Optionally, the design of each system (e.g. hydraulic, electric) is continuously entered to database 20 allowing workers designing other systems to relate to the design of the system before changes become expensive and problematic.

Paragraph beginning on page 12, line 27:

The location of each element is optionally stated in a three-dimensional coordinate system of the aircraft. Optionally, the coordinates of the element are the coordinates of the center of mass

of the element. Alternatively or additionally, the coordinates are of an envelope encompassing the element. In some embodiments of the invention, the coordinates of each element are stated in more than one coordinate system of the aircraft. In some embodiments of the invention, the location information also states the compartment of the aircraft in which the element is located according to any predetermined compartment division, such as the ATA 100 regulation division. Optionally, assembly table 70 also states the access door (bay) for maintenance of each element, for example using the ATA 100 standard. Alternatively or additionally, the compartment and/or the access door of the elements are considered related to the functionality of the element and are stated in MKD table 74 described herein below or in one or more of its related tables 76.

Paragraph beginning on page 16, line 9:

Fig. 4 is a schematic illustration of a uniform MRD code structure 100, in accordance with an embodiment of the invention. Code structure 100 is optionally a global structure which covers all the major elements of an aircraft using a uniform set of rules. In some embodiments of the invention, code structure 100 is based on known coding schemes from the aircraft industry. For example, symbols used in part numbers and/or in wire labeling are optionally used in code structure 100. It is noted that workers 30 from different countries are ~~sued~~ used to different symbols. Therefore, different code structures are optionally used by different companies. For example, American and European companies use different methods to designate the various sections of an aircraft. Therefore, in an embodiment of the invention, the codes used by Americans may be different than codes use by Europeans. In some embodiments of the invention, database 20 includes one or more translation tables for translating codes from different code structures. In an embodiment of the present invention, a worker 30 connecting to database 20 selects a code structure with which he/she is familiar and database 20 automatically displays all codes in the selected code structure.

IN THE CLAIMS

3. ~~(Amended)~~ A system according to claim 1 ~~or claim 2~~, wherein the at least one indication of the relative assembly comprises an indication in each record of the major elements which are functionally related to the element described by the record.

4. ~~(Amended)~~ A system according to ~~any of the preceding claims~~ 1, wherein the at least one indication of the relative assembly comprises an indication in each record of the coordinates in the

174/02403 AO1

vehicles framework of the element described by the record.

5. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the at least one indication of the relative assembly comprises an indication for at least one of the major elements of an access door of the element.

6. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the at least one indication of the relative assembly comprises an indication for at least one of the major elements of a compartment in which the element is located.

7. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the at least one indication of the relative assembly comprises an indication in each record of the major elements with which the element interacts.

8. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the database substantially does not comprise drawings.

9. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the database requires less than 1Gbytes of storage space.

11. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the database includes records for less than 10% of the elements of the vehicle.

13. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the references to the documents comprise hypertext links.

14. (Amended) A system according to ~~any of the preceding claim 91~~, wherein the documents comprise diagrams including the elements.

15. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the documents comprise procurement invoices of the elements.

16. (Amended) A system according to ~~any of the preceding claim 91~~, wherein each of the elements is identified by a unique code which is assigned according to a functionality of the element

174/02403 AO1

17. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the database is associated with at least one computerized tool such that an update of information in the at least one computerized tool automatically updates the database.

18. (Amended) A system according to ~~any of the preceding claim s1~~, wherein the database is accessible over a network which connects a plurality of remote processors.

19. (Amended) A system according to ~~any of the preceding claim s1~~, wherein the database is stored on a portable computer.

20. (Amended) A system according to ~~any of the preceding claim s1~~, comprising input and output information of at least one data evaluation program molded into a form of the database.

22. (Amended) A system according to claim 20 ~~or claim 24~~, wherein the at least one data evaluation program comprises a design-for-manufacture-and-assembly program.

25. (Amended) A method according to claim 23 ~~or claim 24~~, wherein gathering the information comprises gathering interconnection information of the major elements.

26. (Amended) A method according to ~~any of claims 23-25~~, wherein gathering the information comprises gathering references to documents describing the major elements.

27. (Amended) A method according to ~~any of claims 23-26~~, wherein a company designing the vehicle comprises at least one group of workers that are restricted from viewing at least some information relating to the vehicle and wherein gathering the information comprises gathering information which is not restricted from viewing by substantially any of the workers of the company.

29. (Amended) A method according to ~~any of claims 23-28~~, wherein storing the information comprises storing the information in a database.

30. (Amended) A method according to ~~any of claims 23-29~~, wherein gathering the information comprises gathering information on elements of an aircraft.

174/02403 AO1

31. (Amended) A method according to ~~any of claims 23-30~~, wherein automatically gathering the information comprises automatically gathering the information periodically.

34. (Amended) A method according to claim 32 ~~or claim 33~~, wherein the plurality of different indications of the relative assembly of the element comprise at least one indication of the location of the element.

36 (Amended) A method according to claim 34 ~~or 35~~, wherein the at least one indication of the location of the element comprises an indication of an access door to the element within the vehicle.

37 (Amended) A method according to ~~any of claims 34-36~~, wherein the at least one indication of the location of the element comprises an indication of a compartment in which the element is located.

38 (Amended) A method according to ~~any of claims 32-37~~, wherein the plurality of different indications of the relative assembly of the element comprise a list of the major elements with which the element is connected.

39. (Amended) A method according to ~~any of claims 32-38~~, wherein the plurality of different indications of the relative assembly of the element comprise an indication of a system to which the element belongs.

41. (Amended) A method according to ~~any of claims 32-40~~, comprising running a verification routine which finds design faults, on the database.

43 (Amended) A method according to ~~any of claims 32-42~~, wherein the database does not include diagrams or drawings.

44. (Amended) An aircraft designed using the method of providing information of ~~any of claims 32-43~~.

47. (Amended) A method according to claim 45 ~~or 46~~, wherein assigning the code comprises assigning a code having at least three digits in common with digits of a part number of the element, for substantially all the major elements of the aircraft.

174/02403 AO1

48. (Amended) A method according to ~~any of claims 45-47~~, wherein assigning the code comprises assigning a plurality of codes to at least one single element.

52. (Amended) A method according to claim 50 ~~or 51~~, comprising preparing a responsibility matrix which references workers by the assigned worker codes.

174/02403 AO1

17. (Amended) A system according to ~~any of the preceding claims 1~~, wherein the database is associated with at least one computerized tool such that an update of information in the at least one computerized tool automatically updates the database.

18. (Amended) A system according to ~~any of the preceding claim s1~~, wherein the database is accessible over a network which connects a plurality of remote processors.

19. (Amended) A system according to ~~any of the preceding claim s1~~, wherein the database is stored on a portable computer.

20. (Amended) A system according to ~~any of the preceding claim s1~~, comprising input and output information of at least one data evaluation program molded into a form of the database.

22. (Amended) A system according to claim 20 ~~or claim 21~~, wherein the at least one data evaluation program comprises a design-for-manufacture-and-assembly program.

25. (Amended) A method according to claim 23 ~~or claim 24~~, wherein gathering the information comprises gathering interconnection information of the major elements.

26. (Amended) A method according to ~~any of claims 23-25~~, wherein gathering the information comprises gathering references to documents describing the major elements.

27. (Amended) A method according to ~~any of claims 23-26~~, wherein a company designing the vehicle comprises at least one group of workers that are restricted from viewing at least some information relating to the vehicle and wherein gathering the information comprises gathering information which is not restricted from viewing by substantially any of the workers of the company.

29. (Amended) A method according to ~~any of claims 23-28~~, wherein storing the information comprises storing the information in a database.

30. (Amended) A method according to ~~any of claims 23-29~~, wherein gathering the information comprises gathering information on elements of an aircraft.

31. (Amended) A method according to ~~any of claims 23-30~~, wherein automatically gathering the information comprises automatically gathering the information periodically.

34. (Amended) A method according to claim 32 ~~or claim 33~~, wherein the plurality of different indications of the relative assembly of the element comprise at least one indication of the location of the element.

36. (Amended) A method according to claim 34 ~~or 35~~, wherein the at least one indication of the location of the element comprises an indication of an access door to the element within the vehicle.

37. (Amended) A method according to ~~any of claims 34-36~~, wherein the at least one indication of the location of the element comprises an indication of a compartment in which the element is located.

38. (Amended) A method according to ~~any of claims 32-37~~, wherein the plurality of different indications of the relative assembly of the element comprise a list of the major elements with which the element is connected.

39. (Amended) A method according to ~~any of claims 32-38~~, wherein the plurality of different indications of the relative assembly of the element comprise an indication of a system to which the element belongs.

41. (Amended) A method according to ~~any of claims 32-40~~, comprising running a verification routine which finds design faults, on the database.

43. (Amended) A method according to ~~any of claims 32-42~~, wherein the database does not include diagrams or drawings.

44. (Amended) An aircraft designed using the method of providing information of ~~any of claims 32-43~~.

47. (Amended) A method according to claim 45 ~~or 46~~, wherein assigning the code comprises assigning a code having at least three digits in common with digits of a part number of the element, for substantially all the major elements of the aircraft.

174/02403 AO1

48. (Amended) A method according to ~~any of~~ claims 45-47, wherein assigning the code comprises assigning a plurality of codes to at least one single element.

52. (Amended) A method according to claim 50-~~or~~ 51, comprising preparing a responsibility matrix which references workers by the assigned worker codes.

09/14/07 08:27:01